

13

Date: Thursday, 3/13/2008 1:01:37 PM  
User: Kim Johnston

## Process Sheet

Customer : CU-DAR001 Dart Helicopters Services  
Job Number : 37988  
Estimate Number : 13216  
P.O. Number :  
This Issue : 3/13/2008 S.O. No. :  
Prsht Rev. : NC  
First Issue : / / Type : LANDING GEAR  
Previous Run :  
Written By :  
Checked & Approved By : 08 03 13  
Comment : Est Rev:A 08-03-06 new issue DD verified by:ec

Drawing Name : 212/205 HIGH FED X-TUBE ASSEMBLY  
Part Number : D212664101TRN  
Drawing Number : D212-664-141 REV C  
Project Number : N/A  
Drawing Revision : C  
Material :  
Due Date : 3/28/2008 Qty: 1 Um: Each

## Additional Product

Job Number:



Seq. #: Machine Or Operation: Description:

1.0 D6005128 Crosstube material



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Pick:

Qty Part number Description Batch  
1 D6005-128 Crosstube B34686

Check OD = 2.750"; ID = 2.000"

a-m 08.03.31 ①

2.0 MORI SEIKI MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA113 a-m 08.03.31 ①

2-Turn first side as per Folio FA113

3-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-141.

3.0 QC1 INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

a-m 08.03.31 ①

4.0 MORI SEIKI MORI SEIKI CNC LATHE LARGE



Comment: MORI SEIKI CNC LATHE LARGE

1-Turn second side as per Folio FA113

2-Deburr & Inspect for surface damage. Repair damage within limits as per Dwg D212-664-141.

3-Remove sand and plugs

a-m 08.03.31 ①

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Thursday, 3/13/2008 1:01:37 PM

User: Kim Johnston

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: 212/205 HIGH FED X-TUBE ASSEMBLY

Job Number: 37988

Part Number: D212664101TRN

Job Number:



Seq. #:

Machine Or Operation:

Description :

4-Scribe part # and batch # using vibrating stylus as per Dwg D212-664-141

5.0

QC1

INSPECT ALL DIM TO DIM SHEET



Comment: INSPECT ALL DIM TO DIM SHEET

A-m 08.03.31 (1)

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

08-03-31

(1)

7.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

N/A

1-Polish entire outside surface of crosstube

08-04-02 (1)

8.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

M

08 04 02

(1)

9.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

DP

8-4-2

10.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock in kanban rack

Location: Crosstube Cell

DP

8-4-2

11.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

08/04/04

Job Completion



umf

08-04-02

u

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

<b>DART AEROSPACE LTD</b>	<b>Work Order:</b>	<b>37988</b>
<b>Description:</b> Crosstube Assembly (205/212/412 High Fwd)	<b>Part Number:</b>	<b>D212-664-141</b>
<b>Inspection Dwg:</b> D212-664-141 <b>Rev:</b> C		<b>Page 1 of 1</b>

### FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

Inspection Sheet Drawing Dimension		Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	0.200				
	R0.063	+/-0.010	R0.063				
	2.740	+0.005/-0.000	2.744				
	5.097	+/-0.030	5.097				
	2.304	+0.005/-0.000	2.308				
	2.340	+0.005/-0.000	2.344				
	2.398	+0.005/-0.000	2.402				
	2.448	+0.005/-0.000	2.452				
	2.498	+0.005/-0.000	2.502				
	2.549	+0.005/-0.000	2.554				
	2.599	+0.005/-0.000	2.602				
	2.671	+0.005/-0.000	2.674				
	2.701	+0.005/-0.000	2.705				
SIDE B	0.200	+/-0.010	0.200				
	R0.063	+/-0.010	R0.063				
	2.740	+0.005/-0.000	2.745				
	5.097	+/-0.030	5.098				
	2.304	+0.005/-0.000	2.309				
	2.340	+0.005/-0.000	2.345				
	2.398	+0.005/-0.000	2.401				
	2.448	+0.005/-0.000	2.452				
	2.498	+0.005/-0.000	2.502				
	2.549	+0.005/-0.000	2.554				
	2.599	+0.005/-0.000	2.603				
	2.671	+0.005/-0.000	2.675				
	2.701	+0.005/-0.000	2.703				
	126.51	+/-0.020	126.490				

<b>Measured by:</b>		<b>Audited by:</b>		<b>Prototype Approval:</b>	N/A
<b>Date:</b>		<b>Date:</b>		<b>Date:</b>	N/A

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-101)	KJ/JLM	
B	06.03.15	Tolerance revised for 5.097 per Dwg Rev update	KJ/JLM	
C	07.05.28	Dwg Rev updated	KJ/JLM	

**DART**

DESIGN <b>PH</b>	DRAWN BY <b>PH</b>	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
CHECKED <b>GP</b>	APPROVED <b>[Signature]</b>	DRAWING NO. D212-664-141	REV. C SHEET 1 OF 3
DATE 07.03.08		TITLE XTUBE ASS'Y (205/212/412 HI FWD) NTS	
A	00.12.12	NEW ISSUE	
B	05.02.04	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	
C	07.03.08	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	

**RELEASED**07.04.24 **[Signature]**

Qty	Part Number	Description
X	D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
1	D6005-128	CROSSTUBE
2	D2893-1	SUPPORT
4	D3595-063-450	RUBBER CUSHION
4	MS21920-25	CLAMP (OR MS21920-26)
A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

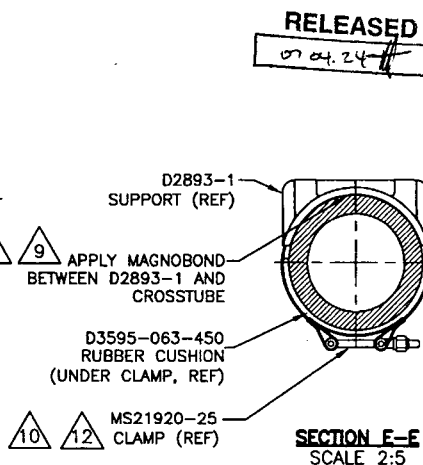
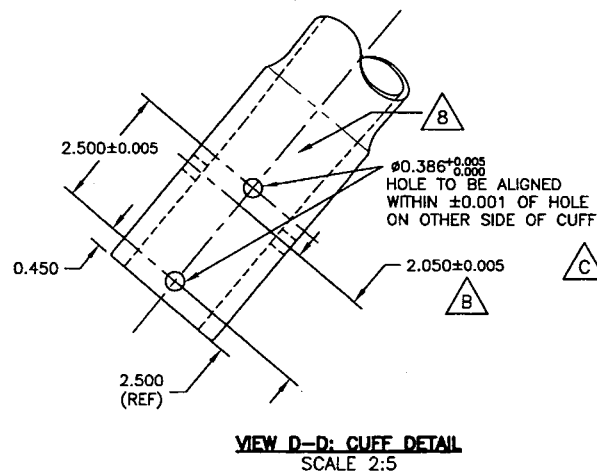
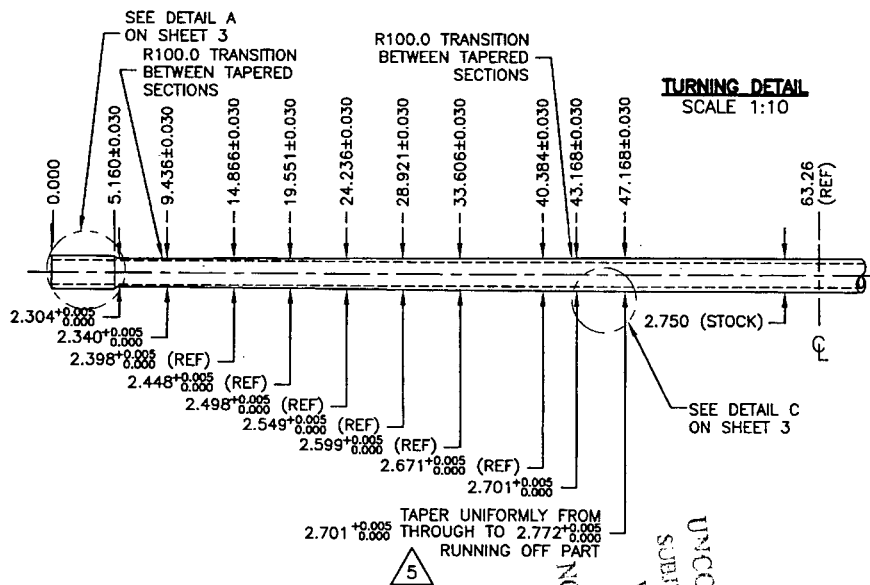
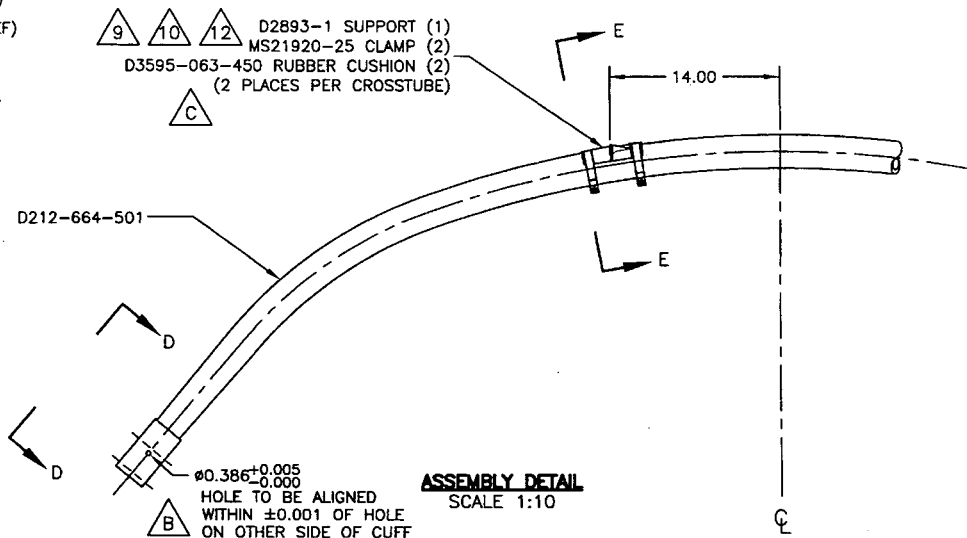
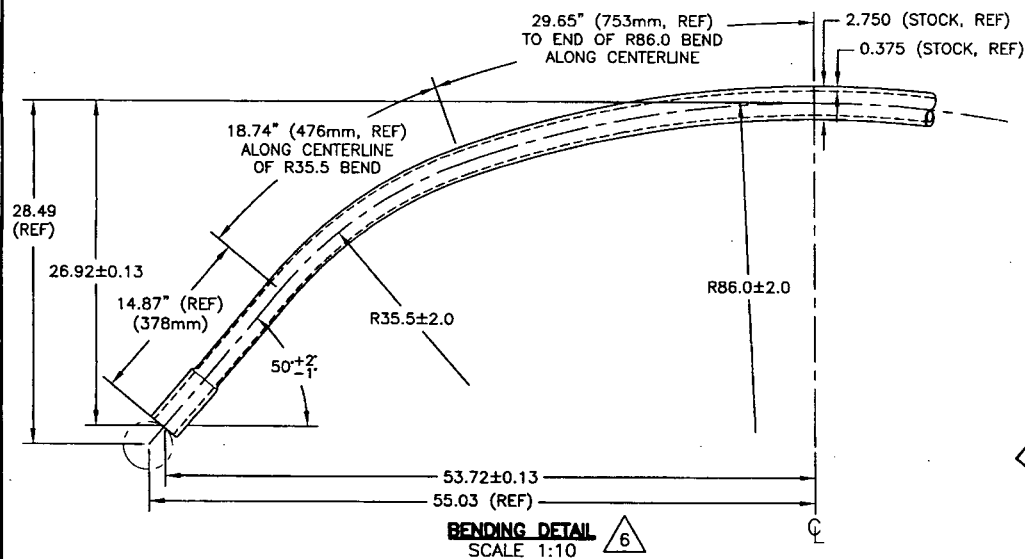
**GENERAL NOTES:**

- 1) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 2) MATERIAL: MANUFACTURED FROM D6005-128  
FINISHED LENGTH =  $126.51 \pm 0.020$
- 3) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 4) PART IS SYMMETRIC ABOUT CENTERLINE.
- 5) RUN-OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 6) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 7) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 8) SCRIBE DART PART NUMBER AND BATCH NUMBER IN THIS AREA WITH VIBRATING STYLUS.
- 9) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 10) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT
- 11) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 12) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

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07.04.24

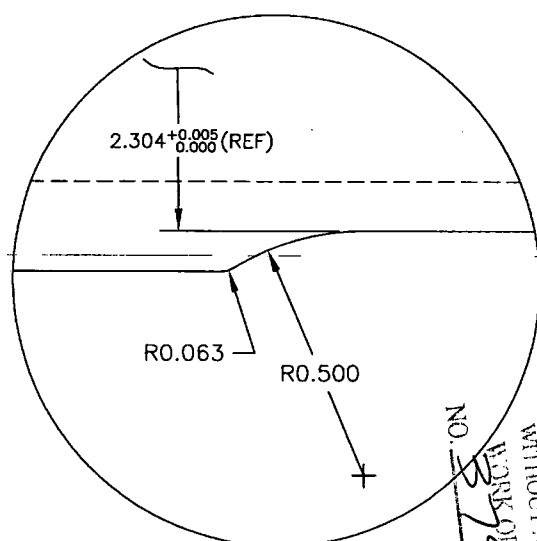
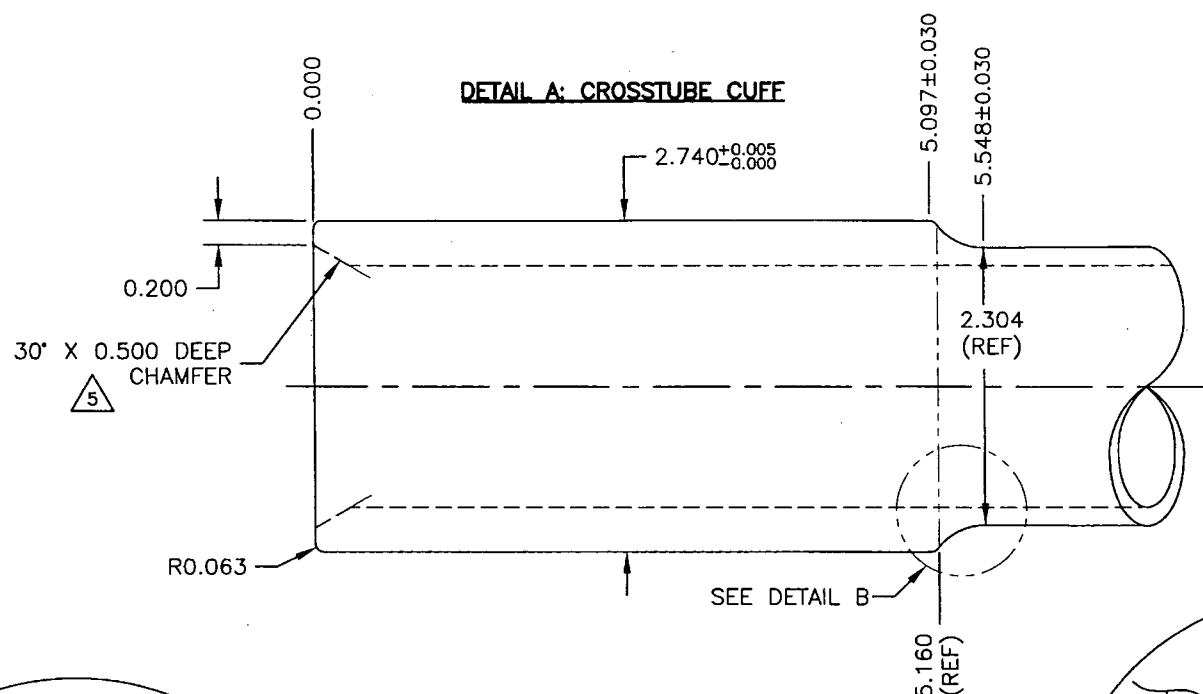
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CHECKED	97	APPROVED	4	DRAWING NO.	REV. C
DATE	07.03.08	TITLE	XTUBE ASS'Y (205/212/412 HI FWD)	D212-664-141	SHEET 2 OF 3
		SCALE	1:10		

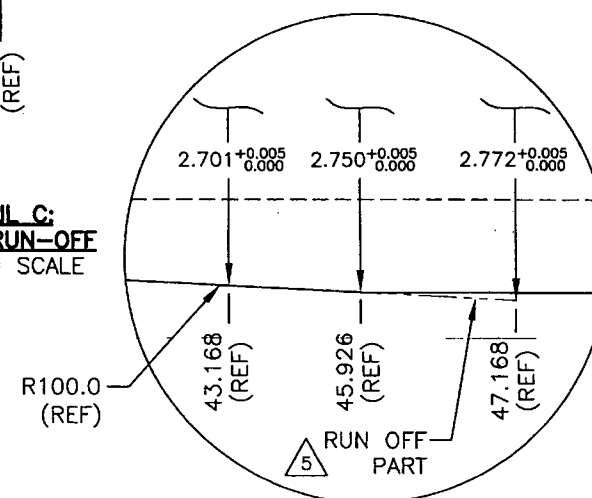
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 07.04.24 (P)  
 PER E.C.N. 883



**DETAIL B: CUFF  
 TRANSITION**  
 SCALE 4:1

**DETAIL C:  
 TAPER RUN-OFF**  
 NOT TO SCALE



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DESIGN PH	DRAWN BY PH	<b>DART</b>	DART AEROSPACE LTD. HAMPSHIRE, ONTARIO, CANADA
CHECKED J	APPROVED J	DRAWING NO. D212-664-141	REV. C SHEET 3 OF 3
DATE 07.03.08	TITLE XTUBE ASS'Y (205/212/412 HI FWD)	SCALE 1:1	